AGRICULTURE MECHANICS

An instructor endorsed in Agricultural Mechanics will have a basic knowledge in all areas and exhibit expertise in a majority of the following areas:

- ✓ General Ag Shop Operations and Safety
- ✓ Building Construction
- ✓ Metal Fabrication
- ✓ Wood Construction
- ✓ Concrete Construction
- ✓ Plumbing
- ✓ Wiring
- ✓ Land Surveying
- ✓ Power Technology

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AUTO BODY

An instructor endorsed in Auto Body will have a basic knowledge in all areas and exhibit expertise in the majority of the following areas:

General Auto Body Shop/Lab Safety & Related Environmental Issues
Specific Safety Practice – pertaining to each area and the tools/equipment involved

- √ Metalworking Techniques
- √ Welding
- √ Repair Cost Estimating
- √ Plastic Repair
- √ Painting and Refinishing
- √ Glass Removal and Installation
- √ Body Parts Repair and Replacement
- √ Frame Alignment – Conventional & Unitized Body

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AUTOMOTIVE TECHNOLOGY

An instructor endorsed in Automotive Technology will have a basic knowledge in all areas and exhibit expertise in the majority of the following areas:

General Automotive Shop/Lab Safety & Related Environmental Issues
Specific Safety Practice – pertaining to individual Automotive Processes and Procedures

- √ NATEF Automotive Standards
- √ Engine Components
- √ Automotive Diagnostic Equipment and Test Procedures
- √ Precision Measurement
- √ Brake Systems
- √ Cooling Systems
- √ Air Conditioning
- √ Fuel Systems
- √ Emission Control Systems
- √ Electrical and Electronic Systems
- √ Drivetrain – including transmission, transaxle, and differential components
- √ Steering Systems
- √ Suspension Systems

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AVIATION

An instructor endorsed in Aviation will have a basic knowledge in all areas and exhibit expertise in the majority of the following areas:

Aircraft and Aviation Safety

- √ Aerodynamics
- √ Gyroscopic Instruments
- √ Magnetic Compass
- √ Engine Operation
- √ Fuel System
- √ Induction System
- √ Electrical System
- √ Weight & Balance
- √ Aeronautical Charts
- √ Navigation Methods
- √ Flight Planning
- √ Principles of Weather
- √ FAA Regulations
- √ Preflight Briefing

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BUILDING MAINTENANCE

An instructor endorsed in Building Maintenance will have a basic knowledge in all areas and exhibit expertise in the majority of the following areas:

General Building Safety, Custodial Safety & Related Environmental Issues
Specific Safety Practice – pertaining to each area and the tools/equipment and chemicals involved

- √ Approved Custodial Practice
- √ Custodial Equipment
- √ Floor Maintenance
- √ Carpet Maintenance
- √ Window Maintenance
- √ General Building Maintenance
- √ Restroom Maintenance

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BUILDING TRADES

An instructor endorsed in Building Trades will have a basic knowledge in all areas and exhibit expertise in the majority of the following areas:

General Shop/Lab Safety & Related Environmental Issues
Specific Safety Practice - pertaining to each area and the tools/equipment involved

- √ State and Local Building Codes – commercial and residential
- √ Blueprint Reading
- √ Cabinetry
- √ Carpentry
- √ Construction
- √Heating, Ventilation, Air Conditioning, and Refrigeration - HVAC
- √ Electrical Wiring
- √ Masonry – including bricklaying, stonemason, and concrete work
- √ Plumbing

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COMPUTER INFORMATION SYSTEMS

An instructor endorsed in Computer Information Systems will have a basic knowledge in all areas and exhibit expertise in a majority of the following areas:

- ✓ Networking skills as it relates to business application environments
- ✓ Computer operating systems and architecture
- ✓ Programming skills—knowledge of one or more computer languages (i.e. COBOL, JAVA, C++, HTML, BASIC)
- ✓ Database concepts, management structures, analysis; database management
- ✓ Software management systems and data communications
- ✓ Web design applications appropriate for secondary level

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CULINARY ARTS

An instructor endorsed in Culinary Arts will have a basic knowledge in all areas and exhibit expertise in a majority of the topics for the appropriate classroom levels:

Middle School Classes

- √ Healthy food choices
- √ Teenage nutrition
- √ Basic food preparation
- √ Kitchen sanitation
- √ Kitchen safety

Freshman and Sophomore Classes

- √ Teen Nutrition
- √ Personal weight management
- √ Kitchen sanitation and safety
- √ Food preparation skills
- √ Family meal preparation

Junior and Senior Classes: Must focus on a career option

- √ Advanced food preparation skills
- √ Regional American foods/foreign foods
- √ Meal management family/business
- √ Entrepreneurship in the foods area
- √ Pro Start- Restaurant and Hospitality Food Service

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DIESEL MECHANICS

An instructor endorsed in Diesel Mechanics will have a basic knowledge in all areas and exhibit expertise in the majority of the following areas:

General Shop/Lab Safety & Related Environmental Issues
Specific Safety Practice – pertaining to each area and the tools/equipment involved

- √ Diesel Theory
- √ Two Cycle Diesel Engines
- √ Four Cycle Diesel Engines
- √ Diesel Diagnostic Equipment and Test Procedures
- √ Brake System
- √ Cooling System
- √ Air Conditioning
- √ Hydraulic Systems
- √ Fuel Systems
- √ Emission Control Systems
- √ Electrical and Electronic Systems
- √ Drivetrain – including transmission, transaxle, and differential components
- √ Steering System
- √ Suspension System

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DRAFTING

An instructor endorsed in Drafting will have a basic knowledge in all areas and exhibit expertise in the majority of the following areas:

General Drafting Lab Safety

- √ Manual Drafting Methods
- √ Computer Aided Drafting
- √ Architectural Drafting
- √ Technical Drafting

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ELECTRONICS

An instructor endorsed in Electronics will have a basic knowledge in all areas and exhibit expertise in the majority of the following areas:

General Electronics Lab Safety & Related Environmental Issues
Specific Safety Practice – pertaining to each area and the tools/equipment involved

- √ Electronics Industry Standards
- √ Electrical Engineering Design
- √ Interpretation of Electronic Schematics
- √ Diagnostic & Test Equipment
- √ Circuitry
- √ Control Systems
- √ Instrumentation
- √ Electromagnetics
- √ Power Generation & Transmission Systems
- √ Computer Electronics - Microprocessing
- √ Industrial Robot Control Systems

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GRAPHIC ARTS

An instructor endorsed in Graphic Arts will have a basic knowledge in all areas and exhibit expertise in the majority of the following areas:

General Lab Safety
Specific Safety Practice – pertaining to each area and the tools/equipment involved

- √ Communication
- √ Composition
- √ Illustration
- √ Annotation
- √ Graphic Design Software Application and Implementation
- √ Visual Design & Layout Concepts
- √ Commercial and Industrial Design
- √ Animation
- √ Multimedia
- √ Audio & Video Editing
- √ Typography (style, arrangement, & appearance)
- √ Photography
- √ Darkroom Techniques

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Health Occupations Education

An instructor endorsed in Health Occupations will have experience and knowledge in one or more of the following areas:

Exercise Physiology
Kinesiology and Exercise Science
Kinesiotherapy/Kinesiotherapist
Medical/Clinical Assistant
Clinical/Medical laboratory assistant
Pharmacy Technician/Assistant
Pharmacy
Medical Radiologic Technology/Science-Radiation Therapist
Radiologic Technology/Science Radiographer
Physician Assistant
Athletic Trainer/Trainer
Clinical/Medical Laboratory Technician
Clinical Laboratory Science/Medical Technology/Technologist
Phlebotomy/Phlebotomist
Nursing/Registered Nurse
Osteopathic Medicine/Osteopathy
Physical Therapy/Therapist

HEAVY EQUIPMENT OPERATOR

An instructor endorsed as a Heavy Equipment Operator will have a basic knowledge in all areas and exhibit expertise in the majority of the following areas:

General Shop/Worksite Safety & Related Environmental Issues
Specific Safety Practices - pertaining to the Operation and Maintenance of each piece of equipment involved in the instruction.

Because of the large variety of heavy duty equipment available, individual types of equipment will not be listed, but will be categorized as wheeled, tracked, portable and stationary related to the following areas of business:

- √ Agriculture
- √ Construction
- √ Industrial
- √ Manufacturing
- √ Mining
- √ Petrochemical
- √ Pipeline
- √ Railroad

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HORTICULTURE

An instructor endorsed in Horticulture will have a basic knowledge in all areas and exhibit expertise in a majority of the following areas:

- ✓ Greenhouse Management and Production
- ✓ Nursery Management and Production
- ✓ Floriculture
- ✓ Landscaping
- ✓ Turfgrass Management and Production
- ✓ Horticulture Food Crop Production

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INDUSTRIAL MECHANICS

An instructor endorsed in Industrial Mechanics will have a basic knowledge in all areas and exhibit expertise in the majority of the following areas:

General Shop/Lab Safety & Related Environmental Issues
Specific Safety Practice – pertaining to each area and the tools/equipment involved

- √ Blueprint Reading
- √ Schematic Reading
- √ Electrical/Electronics
- √ Machinery Troubleshooting
- √ Diagnostic Equipment & Test Procedures
- √ Hydraulic Systems
- √ Pneumatic Systems
- √ Machinery Repair
- √ Preventive Maintenance
- √ Lubrication Systems
- √ Calibration of Automated Systems
- √ Equipment/Machinery Installation

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MACHINING

An instructor endorsed in Machining will have a basic knowledge in all areas and exhibit expertise in the majority of the following areas:

General Machine Shop/Lab Safety & Related Environmental Issues
Specific Safety Practice – pertaining to each area and the tools/equipment involved

- √ Machining Operations and Theory
- √ Bench Metal Operations
- √ Blueprint Reading
- √ Layout Procedures
- √ Precision Measurement
- √ Metallurgy
- √ Grinding Procedures
- √ Fixture and Jig Set-up
- √ Lathe Operation
- √ Milling Machine Operation
- √ Drill Press Operation

Computer Numerical Control - CNC
Computer Aided Manufacturing - CAM

Other machining processes are used in industry but may not be common in secondary education settings.

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METALS

An instructor endorsed in Metals will have a basic knowledge in one or more of the metal trade areas and exhibit expertise in the majority of the following areas:

General Metal Shop/Lab Safety & Related Environmental Issues
Specific Safety Practice – pertaining to each area and the tools/equipment involved

- √ Blueprint Reading
- √ Layout Procedures
- √ Fabrication
- √ Metallurgy
- √ Machining
- √ Sheet Metal
- √ Welding

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SMALL ENGINES
(also known as)
POWER EQUIPMENT TECHNOLOGY

An instructor endorsed in Small Engines will have a basic knowledge in all areas and exhibit expertise in the majority of the following areas:

General Shop/Lab Safety & Related Environmental Issues
Specific Safety Practice – pertaining to each area and the tools/equipment involved

- √ Basic Hand Tools
- √ Internal Combustion Engine Theory
- √ Four-Cycle Engine
- √ Two Cycle Engine
- √ Precision Measuring
- √ Diagnostic Equipment & Test Procedures
- √ Ignition Systems
- √ Fuel Systems
- √ Emission Control Systems
- √ Governor Operation
- √ Cooling Systems
- √ Lubrication Systems
- √ Transmissions
- √ Engine Rebuild Procedures

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WELDING

An instructor endorsed in Welding will have a basic knowledge in all areas and exhibit expertise in the majority of the following areas:

General Welding Shop/Lab Safety & Related Environmental Issues
Specific Safety Practice – pertaining to individual Welding/Cutting Processes

- √ American Welding Society Standards – AWS
- √ ANSI/AWS Welding Symbols
- √ Metal Fabrication
- √ Blueprint Reading
- √ Layout Procedures
- √ Power Supplies
- √ Shielded Metal Arc Welding – SMAW (stick or electric arc)
- √ Gas Tungsten Arc Welding – GTAW (TIG)
- √ Gas Metal Arc Welding – GTAW (MIG)
- √ Flux Core Arc Welding – FCAW
- √ Oxyacetylene Welding and Cutting – OAW and OAC (OFC)
- √ Plasma Cutting – PAC

Other welding processes are used in industry but may not be common in secondary education settings.

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